TITLE

Electric Hairdressing Device

CROSS REFERENCE APPLICATIONS

This application claims priority from German application no. 203 01 400.6 filed Jan. 30, 2003.

FIELD OF INVENTION

The present invention relates to an electric hairdressing device having multiple hair curlers with a heat store, a container for storing and heating the hair curlers and a heating device. The invention further relates to a hair curler, in particular for use with such a hairdressing device.

BACKGROUND OF THE INVENTION

Prior art electric hairdressing devices have a storage container to store hair curlers. Each hair curler has one heat store, which is formed by a metal body, for example of aluminum. Encompassing the heat store the hair curlers have a synthetic shell with a rough surfaces formed of flocking or by projecting synthetic hooklets extending from a synthetic grid. Such a hairdressing device also has a heating device comprising at least one heating element. According to prior art the heat store for heating the hair curlers is freely accessible via a end section. The hair curler is brought into contact with this end section on a complementarily developed element of the heating device. The hair curlers are held in the storage container one lying

next to the other and with both end sections in a hair curler receptacle under pre-stress. This prevents the hair curlers from rolling out and ensures the hair curlers are in good contact with their thermal contact face on the heating device or the heating element giving off heat.

To employ such a hairdressing device the hair curlers are first heated, and then individually manually removed from the storage container, rolled into the hair or strand of hair to be dressed and subsequently secured with a clasp. To remove the hair curlers from the storage container, the curler is most often grasped with one hand at its two end sections. Care must be taken in this process to not touch the exposed hot surface of the heating device or of the heating element is.

In order to achieve a good set of the curl, the hair curlers must be left in the hair for a considerable length of time. Specifically, until the majority of the heat in the heat store of each hair curler has been transferred to the hair to be shaped. However, this time period is occasionally considered to be too long.

Building on this discussed prior art, the present invention addresses the problem of developing a hairdressing device in which the handling of the hair curlers is improved so that the danger of unintentional touching of a heating element is avoided, but with which the desired hair shaping process can be completed more rapidly.

SUMMARY OF THE INVENTION

The primary aspect of the present invention is to provide a hair dressing device in which the individual hair

curlers can be heated to a higher temperature since they are not handled by bare hands.

Other aspects of this invention will appear from the following description and appended claims, reference being made to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

In the present invention each of the hair curlers has a heat store with a heating element receptacle, with which a hair curler can be detachably placed onto a heating element of the storage container with one end section freely accessible. The hairdressing device has an application handle for grasping and rolling one hair curler from the storage container in a torsion-tight configuration. The application handle has a pivotably articulated hair curler finger for holding a strand of hair between the hair curler finger and the surface of a hair curler.

The heat store of each hair curler comprises a receptacle for receiving a heating element such that each hair curler can be placed onto a heating element. The surface serving for placing against the hair can be smooth or formed for example by flocking. A hair curler can, consequently, be held upright in the container such that a end section of the hair curler is freely accessible at the top. The heating elements of the heating device of the storage container can be peg-like attachments of a larger heating element with which several hair curlers or their heat stores can be heated. The preferred embodiment has a separate heating element for each hair.

The heating element receptacle of each hair curler can be a sleeve-form receptacle so that the heat store

circumferentially encompasses the heating element and the two are in contact on the inside of the receptacle. This reduces the needed heating energy. Further, by providing individual heating elements for each hair curler, the size of the individual heating elements can be adapted to the size of the heated hair curler. Consequently, larger hair curlers with a larger heat store can be placed onto a larger heating element. The hairdressing device in such an embodiment gets all of the different sized hair curlers to the specified hairdressing temperature in approximately the same amount of time.

With the described storage configuration of the hair curlers placed onto a heating element with one end section of the hair curlers being freely accessible, the heating element(s) can be located in the interior of the storage container such that only the free end section of a hair curler is accessible at the top. This reduces the danger is that the heating element is unintentionally touched when handling the hair curlers.

Lastly, this hairdressing device also has an application handle to grasp and remove one hair curler at a time from the storage container and to assist in wrapping the strand of hair. Using the application handle means that the hot hair curlers do not need to be touched by hand. Additionally, the application handle has a hair curler finger for holding a hair strand between the hair curler finger and the surface of a hair curler. Once a hair curler has been removed from the storage container using the application handle, the hair curler can readily be wrapped into the hair by inserting a hair strand under the hair curler finger, which pivot on the application handle.

The application handle can also be used for wrapping the hair around the hair curlers. In one embodiment, the application handle has a motor drive, so that the grip of the application handle overall does not need to be rotated to wrap a hair curler into the hair. The use of the application handle has the advantage that the hair curlers can be heated to a higher temperature than would be the case within prior known hair curlers, which are manually rolled into the hair. Using higher temperature hair curlers the hair is shaped faster and has a longer lasting effect.

It is especially advantageous when the hair curlers have a smooth surface, at least in the sections intended for being placed into contact on the hair to be shaped. This improves a heat transfer from the hair curler onto the hair so that the hair shaping process can be completed faster. Such a hair curler can fundamentally be formed by the heat store itself, for example by a cylindrical aluminum rod.

The heating element receptacle of the heat store is disposed along the longitudinal length of the hair curler and penetrates the heat store, if possible, by more than 50% of its longitudinal length. In one embodiment of the invention each hair curler has a receptacle also following the longitudinal length of the hair curler, which is disposed eccentrically with respect to the heating element receptacle to connect a hair curler with the application handle. The contour of such a receptacle formed to fit torsion-tight with a complementary element, such as a blade shape, of the application handle when the element is inserted in the receptacle.

The hair curler can be grasped with the application handle when the blade of the application handle is inserted

into the receptacle and the hair curler finger, under spring tension, is in contact on the outside of the hair curler, so that the hair curler is held by the application handle in the manner of tongs. In such an embodiment removing the hair curler from the blade after wrapping the hair curler into the hair is easy with the hair curler finger open. The receptacle of each hair curler terminates toward the end section of the hair curler which is freely accessible at the top when such a hair curler is plugged onto a heating element in the storage container.

The heating element(s) of the heating device are usefully disposed in a common chamber of the storage device. The chamber can be utilized to treat, for example to wet, the hair curlers before they are applied since when the hair curlers are plugged onto the heating elements the curlers also extend into this chamber, at least partially. The storage container can have a vapor generator to generate a vapor of a liquid, for example water vapor, if desired. Such a vapor generator has a water container with a wick. The water container with the wick is removably attached in the container with a heating plate disposed opposite the wick. If there is the wish to wet the hair curler with water vapor the water tank and wick are moved toward the heating element until the wick abuts the heating element and a dose of water is vaporized. It is also possible to have in the common chamber an ionization device to be able to coat the outside of the hair curlers with ions. In this embodiment the hair curlers have on the outside an electrically non-conducting surface coating, for example a ceramic coating.

In addition, the container has a pocket for storing the application handle. This allows the application handle and the elements for grasping the hair curlers to be heated proportionately during the heating process of the hair curlers to reduce any undesirable cooling of the curlers to a minimum when the hair curlers are grasped with the application handle. If chamber of the storage container has an ionization device, the hair curler finger can have an electrically non-conducting coat and can project into the chamber when store and can also be coated with ions like the hair curler.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of an electric hairdressing device with a storage container and an application handle.

Fig. 2 is a longitudinal sectional view of the hairdressing device of Figure 1.

Fig. 3 is a perspective view of the opened hairdressing device of Figure 1 showing a removal of a hair curler with the application handle.

Fig. 4 is a perspective view of the application handle equipped with a hair curler and a hair curler.

Fig. 5 is a perspective view of the application handle in the process of grasping a hair curler.

Before explaining the disclosed embodiment of the present invention in detail, it is to be understood that the invention is not limited in its application to the details of the particular arrangement shown, since the invention is capable of other embodiments. Also, the terminology used

herein is for the purpose of description and not of limitation.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring first to Figure 1, a hairdressing device 1 has a storage container 2, which is closed at the top with a pivotably articulated lid 3. The storage container 2 holds a multiplicity of hair curlers L, as seen in Figure 3. The hairdressing device 1 has an application handle 4 which can be slid into a pocket 5 of the storage container 2 when not in use. Figure 1 shows the application handle 4 partially slid into the pocket 5. Above the pocket is a grip depression 6 for picking up the hairdressing device 1.

As seen in Figure 2, the storage container 2 of the hairdressing device 1 has an interior chamber 7 which is delimited at the top by an aperture B and by the walls of the storage container 2. The interior chamber 7 has a number of heating elements 8, 8' corresponding to the number of hair curlers L to be stored in the storage container 2. Two heating elements 8, 8', each with a hair curler L, are shown in Figure 2. In the depicted example the heating elements 8, 8' have a rectangular cross section and are formed of the electric heater proper disposed between two plates. The electric heater can be a resistance heating element or other know heating elements. The individual heating elements 8, 8' are all secured on a plate not shown in the Figures and form blade-like pegs.

In the preferred embodiment, the hair curlers L of the hairdressing device 1 are aluminum cores with end sections coated with a synthetic material. The outer surface of the

hair curlers L which contacts the hair to be shaped can have an electrically non-conducting ceramic coating.

A heating element receptacle 10 extends axially inside the longitudinal length of the heat store of the hair curler L from a first end section 9 of the hair curler L. The hair curler L shown on the left in Figure 2 is marked with the reference symbols. All other hair curlers L of the hairdressing device 1 are structured analogously.

The interior contour of the heating element receptacle 10 corresponds to the outer contour of the heating element 8, so that there is circumferential close contact between the inside of the heating element receptacle 10 and the outside of the heating element 8. The heating element receptacle 10 annularly encompasses the heating element 8 to ensure essentially all of heat provided by the heating element 8 is transferred to the hair curler L.

The hair curler L also has two additional receptacles 11, 11' extending the longitudinal extent of the hair curler L. The receptacles 11, 11' are eccentrically placed with respect to the heating element receptacle 10 and terminate in a second end section 12 opposite end section 9 of hair curler L. The contours of the receptacles 11, 11' are identically dimensioned, and in the depicted embodiment are oval in cross section, as seen in Figures 3 and 4. The receptacles 11, 11' are used to grasp the hair curlers L with the application handle 4 and remove the hair curler L from the storage container 2, as shown in Figure 3.

The storage container 2 can also have a vapor generating device 13 with a water tank 14 and a wick 16 near a heating plate 15. The water tank 14 and the wick 16 are moveable relative to the heating plate 15 so that the water-

saturated wick 16 can be brought into contact with the heating plate 15 to generate a dose of vapor. The vapor generated in this way is distributed within chamber 7 and wets the sections of the hair curlers L projecting into chamber 7. An ionization device 17 can also be placed in chamber 7 to generate ions which are deposited on the non-conducting outer surface of the hair curlers L.

In the depiction of Figure 2, the application handle 4 is completely slid into the pocket 5 of the storage container 2.

The hair curlers L are of differing sizes corresponding to the desired requirements. In the depicted embodiment, the heating elements 8, 8' are adapted to the size of the particular hair curler L to be heated with respect to their capacity or their size. The ensures that all hair curlers L disposed in the storage container 2 reach the specified temperature simultaneously or quasi-simultaneously after a heating phase and that the overheating of individual heating elements and, accordingly, excessive heating of individual hair curlers, is largely avoided.

When the hairdressing device 1 is used it is first turned on so that the hair curlers L inserted in the storage container 2 are heated by the heating elements 8, 8'. When the heating process is completed, the application handle 4 can be pulled out of pocket 5 and, after opening lid 3, the hair curlers L can be removed singly from the storage container 2, as shown in Figure 3. For this purpose the application handle 4 has a blade-like extension 18, shown in Figure 5, with an oval contour. The extension 19 is inserted into a receptacle 11 or 11' of a hair curler L.

As shown in Figures 4 and 5, the application handle 4 also has a hair curler finger 19 pivotably disposed on the grip 20. The hair curler finger 19 can be moved by means of an actuation lever 21. When using the actuation lever 21 the movement of the hair curler finger 19 takes place against the force of a reset spring, not shown, which bias the actuation lever 21 to the closed position.

A sufficient gap exists between aperture B of the storage container 2 and the outside of a hair curler L to allow the hair curler finger 19 to be inserted into chamber 7, as shown in Figure 3. A hair curler L is subsequently held tongs-like by the application handle 4 and is pulled from chamber 7. When wrapping the removed hair curler L the hair curler finger 19 is opened, as is shown in Figure 4, a strand of hair to be shaped can be placed between the hair curler finger 19 and the hair contact surface of the hair curler L. By rotating the handle 4 the wrapping proper takes place of the hair curler L into the hair. The application handle 4 is detached from the wrapped hair curler L and secured with a clasp by opening the hair curler finger 19 slightly and pulling the extension 18 out of the receptacle 11 or 11'.

To reduce the energy needed for heating a microswitch can be provided associated with each heating element 8, 8', which is closed when a hair curler is completely placed onto the heating element. Such a switch consequently opens during the removal of a hair curler so that this heating element is subsequently switched off.

A hair curler L is shown individually in Figure 4. The hair curler L has a ceramic coating 22. This coating 22 provides an electrically non-conducting surface and a smooth

hair contact surface. Such a smooth surface has a favorable effect on the hair shaping process because the hair curlers L can easily be removed again from the hair without having to deal with entangling hairs. A hair curler 1 that almost completely consists of the heat store proper has advantages during application and it can be lighter weight, since the smooth surface improves the heat transfer to the hair to be shaped. The hair curlers are usefully heated to a temperature between 90 and 110°C, in particular to a temperature between 95 and 105°C. Due to the provision of the application handle 4, these relatively hot hair curlers can be applied without the hazard of injury.

Although the present invention has been described with reference to the disclosed embodiments, numerous modifications and variations can be made and still the result will come within the scope of the invention. No limitation with respect to the specific embodiments disclosed herein is intended or should be inferred. Each apparatus embodiment described herein has numerous equivalents.

List of Reference Symbols

1	Hairdressing device
2	Storage container
3	Lid
4	Application handle
5	Pocket
6	Grip depression
7	Chamber
8, 8'	Heating element

9		End section
10		Heating element receptacle
11,	11'	Receptacle
12		End section
13		Vapor generating device
14		Water tank
15		Heating plate
16		Wick
17		Ionization device
18		Extension
19		Hair curler finger
20		Grip
21		Actuating lever
22		Ceramic coating
B		Aperture
L		Hair curler